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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/945,020	08/31/2001	Joe Huang	PV00- 103-US1	1649
24587	7590	03/02/2006	EXAMINER	
ALCATEL USA INTELLECTUAL PROPERTY DEPARTMENT 3400 W. PLANO PARKWAY, MS LEGL2 PLANO, TX 75075			LIN, KELVIN Y	
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			2142	

DATE MAILED: 03/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/945,020	<b>Applicant(s)</b> HUANG ET AL.	
	<b>Examiner</b> Kelvin Lin	<b>Art Unit</b> 2142	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 15 December 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 47-66 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 47-66 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **Detailed Action**

### ***Claim Rejections - 35 USC § 101***

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. The method claims 47-66 do not appear to be described as being implemented in any tangible and/or limited to any tangible embodiment(s) (e.g. hardware components).

As such, the claim is not limited statutory subject matter and is therefore non-statutory.

3. To overcome this type of rejection the claims need to be amended to include only the physical computer media or embodied on computer readable media medium, e.g. the computer-readable recording medium storing the program for performing the method, etc.

## **Response to Amended Claims**

### ***Claim Rejections - 35 USC § 102***

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 47-54, 58-66 are rejected under 35 USC 102(e) as being anticipated by Lin et al., (US Patent 6405256).
2. Regarding claim 47, Lin teaches a computer implemented method of dynamically determining a multimedia streaming data rate between multiple points in a communication network in which one or more points send data, servers, and one or more point receive data, clients (Lin, fig.1, element 127, 120, and fig. 4, the caching server (server) sends data based on the adjusted rate of data transmission to client devices, 120) the method comprising the steps of :
  - in the server, estimating an amount of data buffered in the network, BYTE(buffered) at a time a feedback report, FR, is received from the client (Lin, fig. 3, element 203, fig. 4, col.8, l.22-45, in which the cache server estimate the size of data segment 204, between CS(m) and CS(m+1), and the RTP (FR) protocol provides the packet byte information between CS(m) and CS(m+1) on either downstream or upstream directions ); and
  - in the server, calculating a streaming data rate set point based on the estimated BYTE(buffered) and other information from the server. (Lin, fig.4, element 210, the cache server will decrease the transfer rate if the network has congestion based on the CS(m) and CS(m+1)).
3. Regarding claim 48, Lin further discloses the method of 47, wherein the step of

estimating BYTE(buffered) comprises:

- Determining the difference between an accumulative number of bytes sent from the server and a accumulative number of bytes received by the client; adjusting the determined difference by an uplink delay compensation value; and adjusting the determined difference by an estimated amount of accumulative packet lost.  
(Lin, fig. 4, col.8, l.22-45, as discussed above).

4. Regarding claim 49, Lin further discloses the method of claim 48, wherein the uplink delay compensation value is computed as the amount of data sent out by the server during a most previous uplink delay period. (Lin, col.9, l.1-14, the message sent to upstream device, caching server level M-1 will adjust the compensation value during a most previous uplink M-1).
5. Regarding claim 50, Lin further discloses the method of claim 48, wherein the packet lost compensation value is computed as the accumulative amount of data bytes lost from the beginning of the streaming. (Lin, col.8, l.34-39, the client device sending a packet loss rate to CS(m), and compares to the predetermined packet loss rate as the beginning of the streaming).
6. Regarding claim 51, Lin further discloses the method of claim 48, wherein the packet loss compensation value is computed from the number of packets lost reported in the FR and either a short term or long tem average packet size (Lin,col.8, l.31-35, RTP provides, periodically, between CS(m) and CS(m+1), CS(m) check the packet loss rate in term of packet size and time corresponds to

the short and long term average packet size).

7. Regarding claim 52, Lin further discloses the method of claim 47, wherein the other information includes any combination of a pre-adjustment data rate set point, a target byte count,  $BYTE(target)$ , a most recent estimated received data rate, a previous server streaming data rate, an excess send rate, a required send rate change and a tuning parameter (Lin, fig. 3, element 203, the data segment size corresponds to byte count, and col.8, l.54-55, in which it includes the previous server streaming data rate  $CS(m)$ , and required send rate change  $CS(m+1)$ ).
8. Regarding claim 53, Lin further discloses the method of claim 52. wherein the step of calculating the streaming data rate set point includes: calculating the streaming data rate set point as the most recent estimated received data rate plus the required send rate change multiplied by the tuning parameter (Lin, col.8, l.54-62, in which the streaming rate is derived from the  $CS(m)$  to the downstream  $CS(m+1)$  and the expandable buffer in  $CS(m)$  is increase, whereas the tuning factor is one).
9. Regarding claim 54, Lin further discloses the method of claim 52, wherein the step of calculating the streaming data rate set point as the pre-adjustment data rate set point minus the excess send rate plus the required send rate change multiplied by the tuning parameter (Lin, fig. 4, element 214, 216, 222,  $CS(m)$ ).

increase data segment transfer rate to  $CS(m+1)$ ).

10. Regarding claim 58, Lin further discloses the method of claim 52, wherein the Received data rate is calculated as the bytes received within a period between receiving a last and current FR divided by a FR report interval (Lin, col.8, l.40-45, the packet rate is based on the RTP set point on  $CS(m)$ , previous interval, and  $CS(m+1)$  current interval).
11. Regarding claim 59, Lin further discloses the method of claim 52, wherein the required send rate change is calculated as the difference between  $BYTE(target)$  and  $BYTE(buffered)$  divided by a FR report interval (Lin, fig. 3, element 203, the data segment size corresponds to byte count, and col.8, l.54-55, in which it includes the previous server streaming data rate  $CS(m)$ , and required send rate change  $CS(m+1)$ ).
12. Regarding claim 60, Lin further discloses the method of claim 47, wherein the Method further comprises steps of: gradually changing the data rate set by the server if a next FR is not received from the client at an expected time; and if the server does not receive FR or an extended period of time due to the presence of a long transmission gap, then pausing the streaming until either a new FR is received or eventually a timeout is reached, and when streaming is first resumed after pausing the streaming data set point is calculated as a most recent estimated received data rate plus a required send rate change multiplied by a tuning parameter (Lin, fig. 3, element 203, the data segment

size corresponds to byte count, and col.8, l.54-55, in which it includes the previous server streaming data rate  $CS(m)$ , and required send rate change  $CS(m+1)$ ).

13. Regarding claim 61, Lin further discloses the method of claim 60, wherein the step of gradually changing the data rate set point includes gradually increasing the data set point (Lin, col.8, l.50-60).
14. Regarding claim 62, Lin further discloses the method of claim 60, wherein the step of gradually changing the data rate set point includes gradually decreasing the data set point (Lin, col.9, l.1-14).
15. Regarding claim 63, Lin further discloses the method of claim 62, wherein the Step of gradually decreasing the data rate set point includes: calculating a decreased data rate set point as an immediately prior data rate set point minus a scaled difference between the prior data rate set point and a minimum data rate set point (Lin, col.8, l.30-45).
16. Regarding claim 64, Lin further discloses the method of claim 63, wherein the Difference between the prior data rate set point and the minimum data rate set point is scaled by a rate delay parameter which is an adjustable percentage value defined by the server (Lin, Lin, fig. 4, col.8, l.22-45).
17. Regarding claim 65 has similar limitations as claims 47. Therefore, Claim 65 is rejected for the same reasons set forth in the rejection of claim 47.
18. Regarding claim 66 has similar limitations as claims 47. Therefore, Claim 66 is rejected for the same reasons set forth in the rejection of claim 47.



***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

19. Claims 55-57 are rejected under 35 USC 103(a) as being unpatentable over Lin et al., (US Patent 6405256) in view of Ravi et al., (US Patent 6292834).

Although Lin discloses the limitation above, Lin does not specifically disclose the calculated upper and lower bound.

However, Ravi discloses the upper and lower bound on the data rate set point:

20. Regarding claim 55, Ravi further discloses the method of claim 52, wherein the step of calculating the streaming data rate set point further includes imposing an upper and lower bound on the data rate set point (Ravi, fig.5a, element 512, fig. 5d, system 440, col. 7, l.26-34, the upper and lower bound are computed also, the time threshold are computed that determines the streaming data rate).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the Ravi's dynamic bandwidth selection for efficient transmission of multimedia streams in the network with Lin's caching server using the upper and lower bond to modify the server level CM(m)

as the predetermine bandwidth values for avoiding the buffer overrun (Ravi, Abstract)

The motivation would be for combining Ravi's dynamically transmitting bandwidth selection for multimedia streams between network server and a network client over RTP protocol message with Lin's caching server to adjust the stream rate and enhance to avoid a network congestion (Ravi, col.9, l.17-25)

21. Regarding claim 56, Ravi further discloses the method of claim 55, wherein the upper and lower bounds imposed on the data rate set point are determined by the server based on a multimedia source encoding range or capabilities of the communication network (Ravi, col.3, l.1-25).
22. Regarding claim 57, Ravi further discloses the method of claim 56, wherein the upper and lower bounds imposed on the data rate set point are determined on a per stream basis by the server (Ravi, col.9, l.60-67, the increase or decrease bandwidth command are send to server let server to perform the bandwidth changes).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kelvin Lin whose telephone number is 571-272-3898. The examiner can normally be reached on Flexible 4/9/5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Caldwell can be reached on 571-272-3868. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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